UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,479	10/20/2005	Bernhard Frei	P05,0201	3582

26574 7590 04/15/2009

SCHIFF HARDIN, LLP
PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER	
WILLS, LAWRENCE E	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
04/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,479	FREI, BERNHARD	
	Examiner	Art Unit	
	LAWRENCE E. WILLS	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 14, 19, 24, 25, 26, and 28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 14, 19, 24, 25, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber et al. (US Patent No. 6,449,385) in view of Katsuyama (US Patent No. 6,701,010).

Regarding claims 14, 25, and 26, Huber'385 teaches a device for real-time monitoring of a print image (Fig. 1), comprising: a printing device (printing press, column 4, line 28); an optical scanning device which scans the printed material (image detecting device B, column 4, lines 26); an evaluation device that is connected with the optical scanning device (Fig. 1, image data from B being sent to counter and comparison circuit, column 4, lines 32-34), the evaluation device comprising a computer (computer, column 6, lines 10-11)

with a storage (column 5, lines 45) and a central processor (processor 17 column 6, lines 10-11); a program stored in the storage of the evaluation device (software, column 6, line 21); and the program monitoring the print image by digitizing a real image in individual pixels (image detecting device B, column 4, lines 26), segmenting a reference image into a plurality of segments (subdivided into inspection areas 13, column 4, line 56) such that respective pixels in the respective segments exhibit approximately a same color property as the respective segments (zonal grouping color zones, column 4, line 61), a reference value describing said color property being associated with the pixels arranged in the respective segments (each inspection area has a height in y direction being equal to a respective ink zone width of the color zone of an inking unit of the printing press, column 3, line 42-45), and comparing color properties of the pixels of the real image with the corresponding reference values of the reference image (nominal/actual data comparison, column 4, line 35), and given a deviation above the predetermined threshold value (defect data F exceed a threshold, column 4, line 40), marking a corresponding pixel as an error in a result image (column 5,line 23), boundary regions of the segments not being considered in the comparison (column 5, lines 8-14) however Huber'385 fails to teach said segmenting of the reference image comprising the steps of successively processing the pixels of the reference image, reading out reference values of already processed pixels adjacent to the pixel which is to be processed, determining which of the reference values is most similar to a color

property of the pixel which is to be processed, and if a difference of said reference value and the color property is less than a predetermined threshold, the pixel which is to be processed is associated with the segment that contains the pixel whose reference value is nearest to the color property of the processed pixel, otherwise the pixel which is to be processed forms a core of a new segment.

Katsuyama'010 teaches successively processing the pixels of the reference image (all the pixels of the input image are compared with each other, column 16, lines 1-2), reading out reference values of already processed pixels adjacent to the pixel which is to be processed (clusters pixels of an input image corresponding to color information, column 15, lines 57-59), determining which of the reference values is most similar to a color property of the pixel which is to be processed (pixels in the range of the color variation are assigned the same label, column 16, lines 53-55), and if a difference of said reference value and the color property is less than a predetermined threshold (column 16, line 25), the pixel which is to be processed is associated with the segment that contains the pixel whose reference value is nearest to the color property of the processed pixel, otherwise the pixel which is to be processed forms a core of a new segment (labels pixels adjacent to a pixel represented by a predetermined color corresponding to the threshold value assigned, column 16, lines 28-31).

Having a system of Huber'385 reference and then given the well-established teaching of Katsuyama'010 reference, it would have been obvious

to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 reference to include clustering techniques as taught by Katsuyama'010 reference, since the clustering of pixels would increase the speed of image inspection and the results would have been predictable.

Regarding claim 19, Huber'385(in combination with Katsuyama'010) teaches wherein the result image is compressed for transfer to a monitoring station (column 5, lines 43-45).

Regarding claim 24, Huber'385(in combination with Katsuyama'010) teaches the monitoring of the print image is a real-time monitoring (column 29-30).

1. Claims 15, 18, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huber et al. (US Patent No. 6,449,385) in view of Katsuyama (US Patent No. 6,701,010)as applied to claim 14 above, and in further view of Darel et. al (US Patent No. 6,024,018).

Regarding claim 15, Huber'385 and Katsuyama'010 fails to teach wherein the color properties associated with the segments are grey levels or color values, or grey values and color values.

Darel'018 teaches wherein the color properties associated with the segments (Region Of Interest, Fig. 7) are grey levels or color values, or grey values and color values (ROI, column 9, line 66-column 10, line 10).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include the region of interest as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 17, Huber'385 and Katsuyama'010 fails to teach wherein the boundary regions exhibit a width of 1 to 10 pixels.

Darel'018 teaches wherein the boundary regions exhibit a width of 1 to 10 pixels (ROI weights, column 10, line 45).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include the region of interest as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 18, Huber'385 and Katsuyama'010 fails to teach wherein the result image is prepared in that individual pixels or a few pixels that are contiguous and marked as errors are reset in the result image (column 15, lines 25-30), such that these pixels are not marked as errors in the prepared result image (color corrections applied, column 15 lines 25-30).

Darel'018 teaches wherein the result image is prepared in that individual pixels or a few pixels that are contiguous and marked as errors are reset in the result image (column 15, lines 25-30), such that these pixels are not marked as errors in the prepared result image (color corrections applied, column 15 lines 25-30).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include improving the quality of image with errors as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 20, Huber'385 and Katsuyama'010 fails to teach wherein for the segmentation of the reference image providing a digital reference image with a plurality of pixels; determining contiguous regions with

approximately the same color property, such a region respectively forming the segment; and associating the reference value with the pixels of the segment, the reference value being a measurement for the color property of the respective segment

Darel'018 teaches wherein for the segmentation of the reference image providing a digital reference image with a plurality of pixels (column 9, lines 35-40); determining contiguous regions with approximately the same color property, such a region respectively forming the segment (clustering algorithm, column 9, line 56); and associating the reference value with the pixels of the segment, the reference value being a measurement for the color property of the respective segment (Step 194, Fig. 9, column 9 line 65-column 10, line 10).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include segmentation and clustering as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 21, Huber'385 and Katsuyama'010 fails to teach wherein a non-reference value is associated with the pixels at the boundary

region of the segments, which means that said pixels are not to be compared with the pixels of the real image.

Darel'018 teaches wherein a non-reference value is associated with the pixels at the boundary region of the segments, which means that said pixels are not to be compared with the pixels of the real image (ROI weights, column 10, line 45).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include control the tolerance as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 22, Huber'385 and Katsuyama'010 fails to teach wherein in the determination of contiguous regions with the same color property, all pixels are selected for such a region whose color property values lie within a certain range around the value of said color property.

Darel'018 teaches wherein in the determination of contiguous regions with the same color property, all pixels are selected for such a region whose color property values lie within a certain range around the value of said color property (column 10, lines 1-10).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include a standard clustering technique as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

Regarding claim 23, Huber'385 and Katsuyama'010 fails to teach wherein segments that are smaller than a predetermined size and that exhibit an adjacent segment whose color property is less removed than a predetermined color interval from the color property of said segment is joined with the adjacent segment, a color property averaged from the color properties of both segments being used as a color property of the joined segment.

Darel'018 teaches wherein segments that are smaller than a predetermined size and that exhibit an adjacent segment whose color property is less removed than a predetermined color interval from the color property of said segment is joined with the adjacent segment, a color property averaged from the color properties of both segments being used as a color property of the joined segment (average for each ROI, column 11 lines 5-35).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Darel'018 reference, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include a averaging color properties as taught by Darel'018 reference because the result would have yielded predictable results and would improve the image inspection system.

2. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huber et al. (US Patent No. 6,449,385) in view of Katsuyama (US Patent No. 6,701,010) as applied to claim 14 above, and in further view of Michael et al. (US Publication No. 2001/0012395).

Regarding claim 16, Huber'385 and Katsuyama'010 fails to teach wherein the pixels of the real image are mapped to corresponding pixels of the reference image via an affine mapping before the comparison.

Michael'395 teaches wherein the pixels of the real image are mapped to corresponding pixels of the reference image via an affine mapping before the comparison (paragraph 0014).

Having a system of Huber'385 and Katsuyama'010 reference and then given the well-established teaching of Michael'395 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the image inspection system of Huber'385 and Katsuyama'010 reference to include affine mapping as taught by Michael'395

reference because the result would have yielded predictable results and would improve the image inspection system.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAWRENCE E. WILLS whose telephone number is (571)270-3145. The examiner can normally be reached on Monday-Friday 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

LEW
April 13, 2009